Listing of Claims:

1. (Currently Amended) A method for performing an interference estimation in a spread spectrum system using a plurality of spreading codes with different code lengths, comprising the steps of:

a) receiving a spread spectrum signal;

b) generating a despread sample signal by averaging over a predetermined code period over which said plurality of spreading codes are orthogonal; ~~and~~

c) calculating a variance estimate based on said despread sample signal;

integrating said despread sample signal over a spreading code length of said received spread spectrum signal;

integrating a signal corresponding to a power of said despread sample signal over said plurality of spreading code lengths; and

subtracting a signal obtained by squaring an output signal of said integration of said despread sample signal from an output signal of said integration of the signal corresponding to the power of said despread signal.

2. (Currently Amended) ~~A~~ The method according to claim 1, wherein said variance estimate is calculated by averaging said despread sample signal over a spreading code length of said received spread spectrum signal.

3. (Currently Amended) ~~A~~ The method according to claim 1, wherein said predetermined code period corresponds to the length of the shortest code of said plurality of spreading codes.

4. (Currently Amended) A method for performing an interference estimation in a spread spectrum system using a plurality of spreading codes with different code lengths, comprising the steps of:

a) receiving a spread spectrum signal;

b) generating a despread sample signal by averaging over a predetermined code period over which said plurality of spreading codes are orthogonal; and

c) calculating a variance estimate based on said despread sample signal; ~~method according to claim 1~~[[,]]

wherein said variance estimate is ~~an~~ a minimum variance unbiased (MVU), calculated ~~by using the equation~~ in accordance with a relationship:

$$\hat{\sigma}^2 = E(|X|^2) - |E(X)|^2;$$

wherein $\hat{\sigma}^2$ denotes said variance estimate for a symbol i of said received spread spectrum signal, X denotes said despread sample signal, E(X) denotes an expectation value for said despread sample signal, and $E(|X|^2)$ denotes ~~the~~ a mean power of said despread sample ~~samples~~ signal.

5. (Currently Amended) ~~A~~ the method according to claim 4, wherein said despread sample signal is generated based on ~~the equation~~ a relationship:

$$X(n) = \frac{1}{m} \sum_{k=1}^{m} r(k);$$

wherein m denotes ~~the~~ a number of chips of said predetermined code period, k denotes a chip index of ~~the~~ a spreading code of said received spread spectrum signal, r(k) denotes ~~the~~ a value of a signal, obtained by removing said spreading code from said received spread spectrum signal, at said chip index k, and ~~wherein~~ X(n) denotes the value of said despread sample signal at a sample index n.

6. (Currently Amended) ~~A~~ The method according to claim 4, wherein said expectation value is obtained based on ~~the equation~~ a relationship:

$$E(X) = \frac{1}{c/m} \sum_{n=1}^{c/m} X(n);$$

wherein c denotes ~~the~~ a spreading code length of said received spread spectrum signal, m denotes ~~the~~ a number of chips of said predetermined code period, n denotes a sample index of said despread sample signal, and X(n) denotes ~~the~~ a value of said despread sample signal at the sample index n.

7. (Currently Amended) ~~A~~ The method according to claim 4, wherein said mean power of said despread sample signal is obtained based on ~~the equation~~ a relationship:

$$E(|X|^2) = \frac{1}{c/m} \sum_{n=1}^{c/m} |X(n)|^2 ;$$

wherein c denotes ~~the~~ a spreading code length of said received spread spectrum signal, m denotes ~~the~~ a number of chips of said predetermined code period, n denotes a sample index of said despread sample signal, and X(n) denotes ~~the~~ a value of said despread sample signal at the sample index n.

8. (Currently Amended) ~~A~~ The method according to claim 4, wherein the interference estimate is obtained based on ~~the equation~~ a relationship:

$$\hat{I} = m\frac{c+m}{c} \cdot \frac{1}{N} \sum_{i=1}^{N} I(i);$$

wherein $\hat{I}$ denotes said interference estimate, m denotes ~~the~~ a number of chips of said predetermined code period, N denotes ~~the~~ a number of averaged symbols of said received spread spectrum signal, for which said variance estimation is performed.

9. (Currently Amended) ~~A~~ The method according to claim 1, wherein said spread spectrum system is a WCDMA system.

10. (Currently Amended) An apparatus for performing an interference estimation in a spread spectrum system using a plurality of spreading codes with different code lengths comprising:

a) receiving means ~~(1)~~ for receiving a spread spectrum signal;

b) sampling means ~~(I1)~~ for generating a despread sample signal by averaging over a predetermined code period over which said plurality of spreading codes are orthogonal; and

c) estimation means ~~(I2, I3, I4, Q1, Q2, A1, M2)~~ for obtaining a variance estimate based on said despread sample signal[[,]];

wherein said estimation means comprises a first integration means for integrating said despread sample signal over a spreading code length of said received spread spectrum signal, a second integration means for integrating a signal corresponding to a power of said despread sample signal over said spreading code length, and subtracting means for subtracting a signal obtained by squaring an output signal of said first integrating means ~~(I2)~~ from an output signal of said second integrating means ~~(I3)~~.

11. (Currently Amended) ~~An~~ The apparatus according to claim 10, wherein said predetermined code period corresponds to ~~the~~ a length of ~~the~~ a shortest spreading code of said plurality of spreading codes.

12. (Currently Amended) ~~An~~ The apparatus according to claim 10, wherein said sampling means comprises an integrating means ~~(I1)~~ for integrating a signal, obtained by removing a spreading code from said received spread spectrum signal, over said predetermined code period.

13. (Canceled)

14. (Currently Amended) ~~An~~ The apparatus according to claim 10, wherein said estimation means comprises an averaging means ~~(I4)~~ for averaging an output signal of said subtracting means ~~(A1, M2)~~ over a predetermined number of symbols of said received spread spectrum signal.

15. (Currently Amended) ~~An~~ The apparatus according to claim 14, wherein said averaging means comprises an integrating means ~~(I4)~~.

16. (Currently Amended) ~~An~~ The apparatus according to claim 14, wherein said averaging means comprises a digital filter.

17. (Currently Amended) ~~An~~ The apparatus according to claim 10, wherein said interference estimation apparatus is an SIR estimator ~~(5)~~ used for performing power control in a spread spectrum transceiver.

18. (Currently Amended) ~~An~~ The apparatus according to claim 10, wherein said spread spectrum system is a WCDMA system.

19. (Currently Amended) A transceiver for a spread spectrum system using a plurality of spreading codes with different code lengths, comprising:

a) receiving means ~~(1)~~ for receiving a spread spectrum signal;

b) sampling means ~~(11)~~ for generating a despread sample signal by averaging over a predetermined code period over which said plurality of spreading codes are orthogonal;

c) estimation means ~~(I2, I3, I4, Q1, Q2, A1, M2)~~ for obtaining a variance estimate based on said despread sample signal; and

d) power control means ~~(6)~~ for generating a transmit power control signal based on said variance estimate[[,]];

wherein said estimation means comprises a first integration means for integrating said despread sample signal over a spreading code length of said received spread spectrum signal, a second integration means for integrating a signal corresponding to a power of said despread sample signal over said spreading code length, and subtracting means for subtracting a signal obtained by squaring an output signal of said first integrating means from an output signal of said second integrating means.

20. (Currently Amended) ~~A~~ The transceiver according to claim 19, wherein said transceiver is a WCDMA receiver.

21. (Currently Amended) ~~A~~ The method according to claim 4, wherein said spread spectrum system is a WCDMA system.

22. (Currently Amended) ~~A~~ The method according to claim 2, wherein said variance estimate is ~~an~~ a minimum variance unbiased (MVU), calculated ~~by using the equation~~ in accordance with a relationship:

$$\hat{\sigma}^2 = E(|X|^2) - |E(X)|^2;$$

wherein $\hat{\sigma}^2$ denotes said variance estimate for a symbol i of said received spread spectrum signal, X denotes said despread sample signal, E(X) denotes an expectation value for said despread sample signal, and $E(|X|^2)$ denotes ~~the~~ a mean power of said despread samples signal.

23. (Currently Amended) ~~A~~ The method according to claim 3, wherein said variance estimate is ~~an~~ a minimum variance unbiased (MVU), calculated ~~by using the equation~~ in accordance with a relationship:

$$\hat{\sigma}^2 = E(|X|^2) - |E(X)|^2;$$

wherein $\hat{\sigma}^2$ denotes said variance estimate for a symbol i of said received spread spectrum signal, X denotes said despread sample signal, E(X) denotes an expectation value for said despread sample signal, and $E(|X|^2)$ denotes ~~the~~ a mean power of said despread samples signal.

24. (Currently Amended) ~~A~~ The method according to claim 5, wherein said expectation value is obtained based on ~~the equation~~ a relationship:

$$E(X) = \frac{1}{c/m} \sum_{n=1}^{c/m} X(n);$$

wherein c denotes ~~the~~ a spreading code length of said received spread spectrum signal, m denotes ~~the~~ a number of chips of said predetermined code period, n denotes a sample index of said despread sample signal, and X(n) denotes ~~the~~ a value of said despread sample signal at the sample index n.

25. (Currently Amended) ~~A~~ The method according to claim 5, wherein said mean power of said despread sample signal is obtained based on ~~the equation~~ a relationship:

$$E(|X|^2) = \frac{1}{c/m} \sum_{n=1}^{c/m} |X(n)|^2 ;$$

wherein c denotes ~~the~~ a spreading code length of said received spread spectrum signal, m denotes ~~the~~ a number of chips of said predetermined code period, n denotes a sample index of said despread sample signal, and X(n) denotes ~~the~~ a value of said despread sample signal at the sample index n.

26. (Currently Amended) ~~A~~ The method according to claim 6, wherein said mean power of said despread sample signal is obtained based on ~~the equation~~ a relationship:

$$E(|X|^2) = \frac{1}{c/m} \sum_{n=1}^{c/m} |X(n)|^2 ;$$

wherein c denotes ~~the~~ a spreading code length of said received spread spectrum signal, m denotes ~~the~~ a number of chips of said predetermined code period, n denotes a sample index of said despread sample signal, and X(n) denotes ~~the~~ a value of said despread sample signal at the sample index n.

27. (Currently Amended) ~~A~~ The method according to claim 5, wherein the interference estimate is obtained based on ~~the equation~~ a relationship:

$$\hat{I} = m \frac{c+m}{c} \cdot \frac{1}{N} \sum_{i=1}^{N} I(i);$$

wherein $\hat{I}$ denotes said interference estimate, m denotes ~~the~~ a number of chips of said predetermined code period, N denotes ~~the~~ a number of averaged symbols of said received spread spectrum signal, for which said variance estimation is performed.

28. (Currently Amended) ~~A~~ The method according to claim 6, wherein the interference estimate is obtained based on ~~the equation~~ a relationship:

$$\hat{I} = m\frac{c+m}{c}\cdot\frac{1}{N}\sum_{i=1}^{N} I(i);$$

wherein $\hat{I}$ denotes said interference estimate, m denotes ~~the~~ a number of chips of said predetermined code period, N denotes ~~the~~ a number of averaged symbols of said received spread spectrum signal, for which said variance estimation is performed.

29. (Currently Amended) ~~A~~ The method according to claim 7, wherein the interference estimate is obtained based on ~~the equation~~ a relationship:

$$\hat{I} = m\frac{c+m}{c}\cdot\frac{1}{N}\sum_{i=1}^{N} I(i);$$

wherein $\hat{I}$ denotes said interference estimate, m denotes ~~the~~ a number of chips of said predetermined code period, N denotes ~~the~~ a number of averaged symbols of said received spread spectrum signal, for which said variance estimation is performed.

30. (Currently Amended) ~~A~~ The method according to claim 2, wherein said spread spectrum system is a WCDMA system.

31. (Currently Amended) ~~A~~ The method according to claim 3, wherein said spread spectrum system is a WCDMA system.

32. (Currently Amended) ~~A~~ The method according to claim 4, wherein said spread spectrum system is a WCDMA system.

33. (Currently Amended) ~~A~~ The method according to claim 5, wherein said spread spectrum system is a WCDMA system.

34. (Currently Amended) ~~A~~ The method according to claim 6, wherein said spread spectrum system is a WCDMA system.

35. (Currently Amended) ~~A~~ The method according to claim 7, wherein said spread spectrum system is a WCDMA system.

36. (Currently Amended) ~~A~~ The method according to claim 8, wherein said spread spectrum system is a WCDMA system.

37. (Currently Amended) ~~An~~ The apparatus according to claim 11, wherein said sampling mean comprises an integrating means ~~(I1)~~ for integrating a signal, obtained by removing a spreading code from said received spread spectrum signal, over said predetermined code period.

38. (Currently Amended) ~~An~~ The apparatus according to claim 11, wherein said estimation means comprises a first integration means ~~(I2)~~ for integrating said despread sample signal over a spreading code length of said received spread spectrum signal, a second integration means ~~(I3)~~ for integrating a signal corresponding to ~~the~~ a power of said despread sample signal over said spreading code length, and subtracting means ~~(A1, M2)~~ for subtracting a signal obtained by squaring an output signal of said first integrating in cans ~~(I2)~~ from an output signal of said second integrating means ~~(I3)~~.

39. (Currently Amended) ~~An~~ The apparatus according to claim 12. wherein said estimation means comprises a first integration means ~~(I2)~~ for integrating said despread sample signal over a spreading code length of said received spread spectrum signal, a second integration means ~~(I3)~~ for integrating a signal corresponding to ~~the~~ a power of said despread sample signal over said spreading code length, and subtracting means ~~(A1, M2)~~ for subtracting a signal obtained by squaring an output signal of said first integrating means ~~(I2)~~ from an output signal of said second integrating means ~~(I3)~~.

40. (Currently Amended) ~~An~~ The apparatus according to claim 11, wherein said estimation means comprises an averaging means ~~(I4)~~ for averaging an output signal of said subtracting means ~~(A1, M2)~~ over a predetermined number of symbols of said received spread spectrum signal.

41. (Currently Amended) ~~An~~ The apparatus according to claim 12, wherein said estimation means comprises an averaging means ~~(I4)~~ for averaging an output signal of said subtracting means ~~(A1, M2)~~ over a predetermined number of symbols of said received spread spectrum signal.

42. (Canceled)

43. (Currently Amended) ~~An~~ The apparatus according to claim 11, wherein said interference estimation apparatus is an SIR estimator ~~(5) used~~ for performing power control in a spread spectrum transceiver.

44. (Currently Amended) ~~An~~ The apparatus according to claim 12, wherein said interference estimation apparatus is an SIR estimator ~~(5) used~~ for performing power control in a spread spectrum transceiver.

45. (Canceled)

46. (Currently Amended) ~~An~~ The apparatus according to claim 14, wherein said interference estimation apparatus is an SIR estimator ~~(5) used~~ for performing power control in a spread spectrum transceiver.

47. (Currently Amended) ~~An~~ The apparatus according to claim 15, wherein said interference estimation apparatus is an SIR estimator ~~(5) used~~ for performing power control in a spread spectrum transceiver.

48. (Currently Amended) ~~An~~ The apparatus according to claim 16, wherein said interference estimation apparatus is an SIR estimator ~~(5) used~~ for performing power control in a spread spectrum transceiver

49. (Currently Amended) ~~An~~ The apparatus according to claim 11, wherein said spread spectrum system is a WCDMA system.

50. (Currently Amended) ~~An~~ The apparatus according to claim 12, wherein said spread spectrum system is a WCDMA system.

51. (Canceled)

52. (Currently Amended) ~~An~~ The apparatus according to claim 14, wherein said spread spectrum system is a WCDMA system.

53. (Currently Amended) ~~An~~ The apparatus according to claim 15, wherein said spread spectrum system is a WCDMA system.

54. (Currently Amended) ~~An~~ The apparatus according to claims 16, wherein said spread spectrum system is a WCDMA system.

55. (Currently Amended) ~~An~~ The apparatus according to claims 17, wherein said spread spectrum system is a WCDMA system.